Editorial

Statistical significance: use and misuse

The use of statistical methods in the evaluation of the results of a scientific investigation is usually indispensable. A wide variety of tests of statistical significance, each with its own inherent advantages and disadvantages, are available. The choice of the most appropriate method is sometimes difficult and is often a matter of experience. Through the use of incorrect tests, misinterpretation of the results of a scientific study can occur and undermine the value of otherwise useful data. Although several short textbooks on medical statistics are readily available,[1 2] authors are strongly encouraged to seek the advice of a professional statistician on the methods used in their studies before submission of papers.

Even cursory examination of published papers in this and other journals shows that the term 'statistically significant' is variably interpreted. For example, in volume 56 (1980) of the *British Journal of Venereal Diseases* one group of authors claimed significance when the probability of the event occurring by chance was 1 in 8·3. In the same volume another group of workers used the term 'significant' when there was a chance probability of about 1 in 5000. To avoid possible confusion it is suggested that contributors to the *Journal* should not use the term 'significant' of $P>0{\cdot}05$.

Authors should ensure that the statistical methods used in their studies are clearly indicated. When used, values for χ^2 should be given in the appropriate section of the paper. If the data presented are insufficient for an independent statistical assessment of the results of an investigation (for example, when Student's *t* test is used without quoting mean and standard deviation), the authors should intimate from whom such information may be obtained.

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References

1. Bradford Hill A. *Principles of Medical Statistics*, 9th ed. London: The *Lancet*, 1971.
2. Swinscow TDV. *Statistics at Square One*. London: BMA, 1976.